

## CLAIMS

What is claimed is:

1. A bicycle carrier adapted to be secured to an article carrier structure on a motor vehicle, to support a bicycle in a vertical orientation adjacent said motor vehicle, said bicycle carrier comprising:

an elongated support rail adapted to be fixedly secured to said article carrier structure such that said support rail extends in a generally vertical orientation adjacent said motor vehicle;

a foldable wheel support adapted to be extended into an operative position extending outwardly of said support rail for engaging a wheel of said bicycle and substantially supporting said bicycle; and

a frame engaging assembly operably associated with said support rail for engaging a frame portion of said bicycle and holding said bicycle against said support rail.

2. The bicycle carrier of claim 1, wherein said foldable wheel support comprises a U-shaped component adapted to engage a portion of a wheel of said bicycle.

3. The bicycle carrier of claim 1, wherein said foldable wheel support includes:

a wheel supporting component moveable pivotally relative to said support rail and adapted to engage a portion of a wheel of said bicycle;

a mounting component, said mounting component adapted to be fixedly secured to said support rail;

wherein said foldable support wheel is pivotably coupled to said mounting component; and

wherein said mounting component includes a stop portion for limiting pivotal movement of said wheel supporting component.

4. The bicycle carrier of claim 1, wherein said frame engaging assembly includes;

a frame supporting member; and

a mounting plate fixedly secured to said elongated support rail, said frame supporting member being pivotally secured to said mounting plate to allow a degree of adjustability to accommodate bicycle frames of various sizes.

5. The bicycle carrier of claim 1, wherein said frame supporting member includes a clamp assembly for clamping onto a portion of a frame of said bicycle.

6. A bicycle carrier adapted to be secured to an article carrier structure on a motor vehicle, to support a bicycle in a vertical orientation adjacent a lift gate of said motor vehicle, said bicycle carrier comprising:

an elongated support rail adapted to be fixedly secured to said article carrier structure such that said support rail extends in a generally vertical orientation and spaced apart from said liftgate of said motor vehicle;

a foldable wheel support adapted to be extended into an operative position extending outwardly of said support rail for engaging one wheel of said bicycle and substantially supporting said bicycle when said bicycle is lifted and placed with said one wheel on said foldable wheel support in a generally vertical orientation; and

a secondary support assembly for engaging said bicycle at a position other than said one wheel to further assist in securing said bicycle in said vertical orientation.

7. The bicycle carrier of claim 6, wherein said secondary support assembly comprises:

a tube;

a clamp carried by said tube, said clamp being adapted to engage a frame portion of said bicycle; and

a support member for securing said tube to said elongated support rail.

8. The bicycle carrier of claim 7, wherein said tube is pivotally secured to said support member.

9. The bicycle carrier of claim 6, wherein said foldable wheel support comprises:

a generally U-shaped member adapted to engage a portion of said one wheel of said bicycle;

a support member secured to said support rail;

said U-shaped member being pivotally secured to said support member so as to be foldable into a position extending generally parallel to said support rail, and extended into a position extending generally normal to said support rail.

10. The bicycle carrier of claim 6, wherein said elongated support rail is comprised of a generally V-shaped component.

11. The bicycle carrier of claim 8, wherein said tube is foldable to a position generally parallel to said elongated support rail when not in use.

12. A bicycle carrier adapted to be secured to an article carrier structure on a motor vehicle, to support a bicycle in a vertical orientation adjacent a lift gate of said motor vehicle, said bicycle carrier comprising:

an elongated support rail adapted to be fixedly secured to said article carrier structure such that said support rail extends in a generally vertical orientation and spaced over but apart from said liftgate of said motor vehicle;

a foldable wheel support adapted to be extended between a stored position, wherein said foldable wheel support is disposed generally parallel to said elongated support rail, and an operative position wherein said foldable wheel is extended into an position outwardly of said support rail;

said foldable wheel support engaging one wheel of said bicycle and substantially supporting an entire weight of said bicycle when said bicycle is lifted and placed with said one wheel on said foldable wheel support in a generally vertical orientation; and

a secondary support assembly secured to said elongated support member for engaging said bicycle at a position other than said one wheel to further assist in securing said bicycle in said vertical orientation.

13. The bicycle carrier of claim 12, wherein said secondary support assembly includes a frame supporting member for engaging a portion of a frame of said bicycle.

14. The bicycle carrier of claim 12, wherein said secondary support assembly includes a clamping assembly for engaging a portion of a frame of said bicycle.

15. The bicycle carrier of claim 12, wherein said secondary support assembly includes:

a frame supporting member operably secured to said elongated support rail and moveable pivotally relative to said elongated support rail; and

a clamping assembly adjustably positionable along said frame supporting member for engaging a portion of a frame of said bicycle.

16. A bicycle carrier adapted to be secured to an article carrier structure on a motor vehicle, to support a bicycle in a vertical orientation adjacent a generally vertical wall portion of said vehicle, said bicycle carrier comprising:

a main support member adapted to be fixedly secured to said article carrier structure such that said support rail extends in a generally vertical orientation and spaced over but apart from said liftgate of said motor vehicle;

a foldable wheel support adapted to be extended between a stored position, wherein said foldable wheel support is disposed generally parallel to said main support member , and an operative position wherein said foldable wheel is extended into an position outwardly of said main support member;

said foldable wheel support engaging one wheel of said bicycle and substantially supporting an entire weight of said bicycle when said bicycle is lifted and placed with said one wheel on said foldable wheel support in a generally vertical orientation; and

a secondary support assembly operably associated with said main support member for engaging a frame portion of said bicycle to further assist in holding said bicycle against said main support member and in said generally vertical orientation.

17. The bicycle carrier of claim 16, wherein said main support member comprises an elongated support rail forming a channel.

18. The bicycle carrier of claim 16, wherein said secondary support assembly comprises:

a support element operably coupled to said main support member and moveable pivotally relative to said main support member;

a clamping assembly disposed on said support element for clamping to a frame portion of said bicycle.

19. The bicycle carrier of claim 18, wherein said support element is positionable generally parallel to said main support member when said bicycle carrier is not in use.

20. The bicycle carrier of claim 18, wherein said clamping assembly is adjustably positionable on said support element.